

July 19/13.

a beautiful day.

Taking photos with Sidney
+ Stuart - from slope
of Mumm - Peak.

Panoramic views from
Mahto Mt. to Robson +
across the Minichan
range.



Lipkana

Phillips -

Ashtentent

R67004

Box 30

F. 3

50) Ranger Canyon Section.

The section was measured near the head of the northeast branch of Ranger brook canyon ~~of the Sawback~~ Range ten miles (16 km) north-northwest in an air line from Banff Alberta.

Ranger brook heads high up in the ~~Sawback~~ range near the divide separating it and the branches of Forty mile creek which is on the ^{northeast} ~~opposite~~ side of the range. Its canyon is between Mt. Sawback on the north and Mt. Allan on the south. and the brook passing out of the southwestern foot of the range flows past the massive park and game



2

warden lodge ~~situated~~
on the Barff - ~~lake house~~
Windermere motor road

The contact between
the dark Devonian lime-
stones carrying Stromato-
pora and numerous
corals with the light
gray limestones of the
Upper Cambrian. More
formation is finely shown
in the cliffs at the
northeast head of the
canyon also along its
northwest side and
southeast rim where
the canyon bends to the
southwest and cuts
through the Devonian
and adjacent Carbon-
iferous limestones.

The relations of the
Devonian and pre-Devonian
strata are mentioned under



3

the heading. Ghost River
formation & interval.
(p. 300) (Ante p. 100)
Section.

Neuman
~~the~~ Disconformity.
Upper Cambrian.
mass formation.
1a

2

+ ~~supra~~ ~~sub~~ ~~Ch~~
~~hard~~ ~~mass~~

~~Sectum~~ ~~gray~~ ~~compact~~
~~limestone~~ ~~the~~ ~~Algonkian~~,
~~Upper Cambrian~~

~~Mass formation.~~

^a ~~Lead~~ ~~gray~~ ~~compact~~
~~limestone~~ in ~~layers~~ ~~2 1/2 to 10~~
~~thick~~ with ~~coherent~~

+ ~~magnesian~~ ~~stringers~~ &
~~irregular~~ ~~partings~~

~~dip~~ ~~60° to 70°~~ ~~S. W~~ (magnetic)
~~a~~ ~~compact~~ ~~layers~~ of ~~dark~~ ~~gray~~ ~~buff~~



~~weathering~~ ~~magnesian~~ ~~lens~~
~~3 to 8~~ ~~thick~~ ~~are~~ ~~intercalated~~
~~at~~ ~~irregular~~ ~~distances~~ ~~from~~
~~each~~ ~~other~~ ~~below~~ ~~40 ft~~
~~down~~ ~~from~~ ~~the~~ ~~top~~

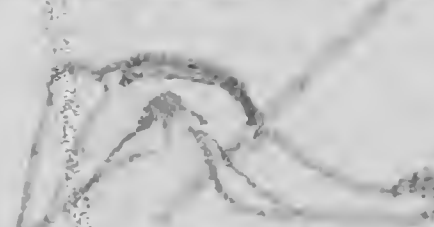
~~at~~ ~~120 feet~~ ~~layers~~
~~with~~ ~~many~~ ~~small~~
~~irregular~~ ~~concretions~~
~~occur~~ ~~with~~ ~~minute~~

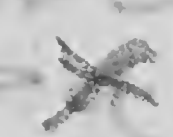
a)

From about 30 ft (m)
down to 80 ft (m)
~~great quantities~~
annelled trails ^{nearby} cover
the rock. & some layers
have annelid borings
passing through them
in all directions. The
borings being filled in
with a hard magnesian
lm. - That causes them
to weather out on
the surface in a most
effective manner.

fragments of an *Obolus*
like shell of bits of
trilobite test.
at 192 the Ophileta
fauna occurs.

661 *Syn trophus* -  Same as
Ophileta? -  at Glacial
Lepke -
Cephiccephalus

(same space
of 2 inches) 

The same fauna occurs
Lake & at head of
Clearwater river.
about ~~10~~ 

Total of 1a

240. ^{feet}

10 Thick bedded rough
weathering gray limestone
interbedded in shaly
limestone & shale.
at 354^{ft} ^m thin
bluish gray shaly
limestone / or bed

*) at 215, noted a
small Orthoceras six
inches (cm) long $5/8$ "
(cm) in diameter on
surface of large block
of rock. It had a
simple small pithmark.
It was ~~very~~ badly injured
by weathering.

in bands, - between
the thick layers -
At 476 ft (m) ¹ below
a trilobite fauna
occurs, in which
Tsinaria? is abundant.
66' (same 2nd space)

The same character of
bluish gray to gray
compact sandstone
containing *Spirifer*
to base of 1st 750 ft

1^c Massive bedded
gray brecciated ^{detached}
into thin shaly
layers 190 ft

Over on back.

about

from 10 to 15 feet
from the base two
thick layers occur
carrying Cryptozoa
sp. - on their
upper surface; they
vary from 6" (cm)
to 14" (cm) in
diameter & can
only be ~~obtained~~
collected by blasting
the very solid compact
limestone.

Mass formation
1 d. thin layers of
compact, gray
lim. with shaly lime
interbedded
in thin bands -
120 ft.

66/1 Faura (Leave space of 2nd)
Tsingia

151 Hanna
N. 30.0 W. 30.0 W. 70.0
magnetic
1.E Thick bedded gray
solidic sand - with
coarse botryoidal
structure in lower
layer - This belt
of the thin layers
just above weather
rusty brown & some
reddish brown
clay.

~~Stip~~ ~~Tanna~~ ~~Esperthes~~ ~~Torresiana~~ ~~Pandora~~ ~~(25 Apr 60)~~

$$\begin{array}{r} 63 \\ 6 \\ \hline 37,800 \end{array}$$

$$\begin{array}{r} 158 \\ 6 \\ \hline 948 \end{array}$$

$$\begin{array}{r} 378 \\ \hline 1326 \end{array}$$

$$\begin{array}{r} 90 \\ 120 \\ 1325 \\ 145 \\ 165 \\ 44 \\ 41 \\ 300 \end{array}$$

$$\begin{array}{r} 2230 \end{array}$$

a few ~~shaly~~ bands
of shale occur as
partings between
the bands of limestone.
90 ft

66 ft / Fauna in lim -
Eoarthia 2 in space
Ischnaria
Sauria

Total mass 1390

64 ft all formation
1 @ gray arenaceous
+ micaceous lime
in thin + massive
layers.
at 1378 ft (m)
down - a band of
dark lead colored
rough weathering
mass - lim occurs
3.5 ft thick + 4.0 ft (m)
below a thicker
band of 4.5 ft (m) 1/2

4

15

6

Relative 60th

29

100

100

7 The gray
light weathering like
them continues down
with alternating
bands of glaucon
marg - 1 m -
Total of 1 - 1325.

2a

Gray oolitic limestone layers
3 to 10 m (10 m)
Thick - with fragments
of calcareous + magn
shale +
Dip 70° S. 30° W magnetic
St. N. 60° W - magnetic 145°.

Fama (664)

664 Aspidium (3 m space)
Pl -

2b Dark bluish-gray
compact limestone in
layers varying from one
to 10 m (1 m) with



The upper 20 ft (gray) has considerable magnesian limestone in the no fossils except animal trails - 165.

3^a Greenish very fine argillaceous shale 9 ft

3^b Steel gray - hard in bands that break down on weathering into shaly + thin layers that

weathering light gray + buff - 44 ft

(4a) (dark buck) Shaly arenaceous beds

~~Gray + purple alternating layers with marked network of open dried cracks filled in with fine sand + silt - a few fine animal trails~~

4^a Alternating bands
of ~~shaly~~ of purple
gray arenaceous
shale & thin layers
of purplish red sand-
stone the surfaces of
which are usually
rippled marked and
checked by sun
cracks, that were
filled in by ^{fine} sand &
silt. a few small
annelid trails occur
on the shaly sandstone
but no other traces
of life were observed

42 feet.

The ripple marks, sun
& wind dried cracked
surface all indicate
a shallow sea,
the bottom of which
was exposed between
tides.

Total Lyell
formation

1680 ft.

Sullivan formation.

1/a

Thin bedded, steel
gray magnesian
limestone weathering
dove gray. No traces
of life in or on
the layers seen.

Estimated

300 ft.

1st massive bedded
rough weathering
magnesian limestone

forming the crest
 of the range and
 greatly disturbed.
 It breaks up somewhere
 in this broken & distorted
 limestone there is a band
 of thin bedded limestone
 in which fossils of the
 Sullivan formation occur
 as fragments were found
 in the debris washed
 down from the high
~~cliffs~~ ragged cliffs.
 There included.

(4 $\frac{1}{2}$ in space)

the contact² is best seen
in a steep narrow
ravine that extends from
the notch on top of the
ridge 1500 feet (m)
or more down the
north slope of the ridge.
Both the Herodian and
Ogankian limestones
are nearly vertical on
the bedding of the
line of contact ~~at a~~
at a point
about three miles (km)
above the mouth
of Ranger Canyon &
a mile south of the
section of 1921.
The upper "Aphileta"
fauna of the lower
occurs about 30 feet
(m) below the
contact - no
traces of the Sanbach

1911

1912

1913

1914

1915

1916

formation were seen
top the valley or
on the north side
of Ranger Canyon
brook where there
is an outcrop of
the Heronian & the
subjacent (mons) Ogar-
Kian limestone.

~~Look for~~ Sanbagh
near head of Johnson
Creek.

F. 3

Box 30

RU 7004

Aug. 19, 1907

Aug. 19/07 Camb. Section (B1)

Castle Hill - B.C.

1) Gray, quartzitic, sd.
in layers 4 to 9 ft thick.
Weathering rough on
surface.

55

Fossils. Fragments of
Olenellus.

2) Drab argillaceous &
arenaceous shale with
thin layers of hard
sandstone. At 46 ft.
a few bands of purple
colored shale appear
& at 57 ft the shale
gives way to thin bedded
shaly gray & brownish
sds.

57.

Fossils

many fragments of Olenellus
in the interbedded sds.

20.

4

4. 5
12 3

17
9
3

29.

layers in the lower
20 feet of the shale.

14
3

gray + dirty brown thin
bedded sd - with coarse
annelid trail & mud
marking on surface of
many layers.

at 19 feet from the
bottom a calcareous
layer 3 in thick appears
& two similar layers
at 19 ft.

27

14. The sandy - shaly
beds give way to
arenaceous shaly lime-
stone with thick
oolitic limestone layers
interbedded.

6

17
5. Repetition of 3.

22

Diana. facies thorides

Ptychoparia

agranulos

(Similar to
Bosworth etc.
forms)

$$\begin{array}{r} 136 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 85 \\ \hline 76 \end{array}$$

$$\begin{array}{r} 30 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 44 \\ \hline 220 \\ \hline 30 \end{array}$$

$$\begin{array}{r} 17 \\ \hline \end{array}$$

35.

245

$$\begin{array}{r} 46 \\ \hline 41 \end{array}$$

6. Bluish gray thin bedded limestone, with corallitic layers 1 to 8" thick.

Favosites.

96

many fragments of trilobites

7. Bluish black bedded limestone.

40

Favosites

Ptychoporia (2 sp.)
Gastropods.

14/8) Gray massive bedded sandstone passing ~~out~~ gradually with the first 50 feet of its base into an arenaceous dolomite that in nearly every bed is marked by large, ^{irregular} annular borings.

260.

17/9) Thin bedded bluish gray

$$\begin{array}{r}
 365. \\
 73. \\
 2 \\
 \hline
 146 \\
 219 \\
 \hline
 365
 \end{array}$$

10

29
5

$$\begin{array}{r}
 145 \\
 20 \\
 \hline
 165
 \end{array}$$

20

165

219.

15

46.

5

$$\begin{array}{r}
 230
 \end{array}$$

$$\begin{array}{r}
 365 \\
 138 \\
 \hline
 227
 \end{array}$$

365

233

132

176

57

233

134

17

51

5

255

35

290

165

455

43

21

64

5

320

43

363

13

23

sh. 5.

arenaceous lm. most of
 which is similar to the lm
 of ⁸ x x

272

Fossils. Near the base

Zacanthoides - head.

Ptychoparia (minute heads)

At 260 feet a shelf of
 about 12 feet usually
 occurs on the cliff
 profile.

~~272~~

Aug 20th
 10. Massive bedded silici-
 nous lm. similar to 8.

At 165 feet up a bed
 of bluish gray lm in thin
 layers occurs for 10-12 ft.

455

11 Thin bedded bluish-
 black & bluish-gray
 lm, a few oolitic
 layers.

138

Fossils

Dorypyge - etc

~~138~~

B.5

$$\begin{array}{r}
 13 \\
 18 \\
 \hline
 31 \\
 5 \\
 \hline
 155 \\
 21 \\
 \hline
 176
 \end{array}$$

$$\begin{array}{r}
 365 \\
 176 \\
 \hline
 189. \\
 2\frac{1}{5} \\
 \hline
 105 \\
 14 \\
 \hline
 120.
 \end{array}$$

$$\begin{array}{r}
 119 \\
 57 \\
 \hline
 176. \\
 57 \\
 \hline
 333 \\
 \hline
 132.
 \end{array}$$

$$\begin{array}{r}
 227. \\
 27 \\
 \hline
 170 \\
 15 \\
 \hline
 46. \\
 5 \\
 \hline
 230 \\
 30 \\
 \hline
 260.
 \end{array}$$

10^a
12) Calcareous & arenaceous
shale. Gray weathering
buff & yellow -

~~170~~
170

Fauna - 17 -

Drab & greenish
argillaceous shale, 37

Fauna - 14 -

c) Gray, buff weather
compact lm - 1.

Aug. 21st

13) massive bedded, cliff
forming, dark & light gray
arenaceous lm, blank
for the first 200^{to 250} feet
from the bottom.

The massive layers break
up into thin layers
on the talus slopes,

260.

14) Massive bedded, light.
medium grained, arenaceous

$$\begin{array}{r}
 14 \overline{) 95} \text{ thin bedded} \\
 \underline{125} \\
 63 \\
 \underline{188} \\
 940 \\
 \underline{125} \\
 1065
 \end{array}$$

$$\begin{array}{r}
 69 \\
 \underline{475} \\
 540
 \end{array}$$

Bar. at foot of
 15. (7625)

35.

56

1065.

limestone

#13

(This lm forms the upper cliff of the east end of Castle Mountain.)

The lm is thin bedded for a short distance between 540 + 575 feet.

This is the great cliff & mountain forming lm of this region.

Fama - numerous animal trails.

The lm weathers more like a compact, granular sandstone than a limestone.

(at Work

7/15) Steel gray - light weathering, areaceous lm - in thin layers

#55

b. bluish-black & gray - fossiliferous lm -

Aug. 22nd 07

$$\begin{array}{r}
 45 \\
 5 \\
 \hline
 230 \\
 30 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 15 \\
 \hline
 5 \\
 35 \\
 3 \\
 12 \\
 \hline
 60
 \end{array}$$

$$\begin{array}{r}
 9 \\
 28 \\
 5 \\
 \hline
 170 \\
 18 \\
 \hline
 158
 \end{array}$$

$$\begin{array}{r}
 35 \\
 260 \\
 60 \\
 \hline
 375 \\
 158 \\
 \hline
 533
 \end{array}$$

$$\begin{array}{r}
 11 \\
 5 \\
 \hline
 55
 \end{array}$$

$$\begin{array}{r}
 18 \\
 47 \\
 5 \\
 \hline
 235 \\
 30 \\
 \hline
 \end{array}$$

becoming micaceous
toward the top — 260.

Laminar

Thinly bedded
trails — ptychoporia
2 or 3 species —

(16). Thin bedded — 2" 6"
gray siliceous lm (17) 265.
Thin — Large & small
annular trails.

17.

(17). Thin bedded, compact
drab colored lm. 60 ft

(18). Shale — Arenaceous &
calcareous — Purple &
gray weathering buff.
intercalated layers 158

(19). Pellicular fine grained,
thin bedded, buff
weathering limestone. 63

19

596

40.

$$\begin{array}{r} 18 \\ 47 \\ \hline 235 \\ 20 \\ \hline 265 \end{array} \quad \begin{array}{r} 55 \\ 47 \\ \hline 8 \end{array}$$

Bar at top of 20th

$$\begin{array}{r} 596, \\ 265 \\ 95 \\ \hline 956, \end{array} \quad \begin{array}{r} 8750 \\ \hline 2125 \end{array}$$

2/20) Arenaceous, purple
colored shales with
interbedded, gray-shaly
lim - thin layers. The
base of the purple shales
occurs at ~~65 ft~~ 265

21) Compact, gray to drab. sil-
iceous layers $1\frac{1}{4}$ in to 6 in
thick with bands of
dark, finely arenaceous
shale. 45

16) Gray & bluish black
limestone with many
small concretion. 50.

Fossils

Taleroptera? ID

Annular trails -

17) ~~21~~ forms the summit
of the section of Cost
Mts.

Castle Mt. Section

20.	Lm	95
20	Shale	265
19	Lm	63
18	Ar + cal sh	158
17	Drab - Lm	60
16	Sil - Lm	265
15	Ar + thin bedded Lm	305
14	Siliceous Lm	1065
13	Gray Lm	260
12	Shale + Lm	228
11	Lm	138
10	Sil Lm	455
9	Lm	272
8	Arenaceous Lm	250
7	Lm	40
6	"	96
5	Sd	22
4	Lm	6
3	Sd	27
2	Shale	57
1	Gtz sd -	55+
		<u>4192.</u>

Aug. 12, 1907

F3

Box 30

R07004

Aug: 12th 07. ³

Sec. A.

Castle Mountain South of
McCannell.

1. Interbedded layers of gray
fossiliferous limestone and
greenish gray siliceous
shale.

20.

Fauna.

Protypus senectus? *Abiculus*
Ptychopora

2. Siliceous shale with a
few interbedded thin layers
of compact gray sandstone.

115

No 2 is cleaved at about
45° to the bedding planes.

For fauna see Mr. Stephen
section.

3.

- Gray & brownish sandstone
in thin massive layers

Fauna

Unrecognizable but *Strophobites*

31.

4) massive beds of alternating, irregular ^{thin} layers of gray limestone and gray sandstone. Oolitic layers of limestone occur at several horizons.

Fauna.

Four feet above base in
 x } oolitic layer 3" thick.
 x } *Ptychopora* 12 sp.
 Scenella -

4^a ~~Massive~~ ^{made of} layers of banded bluish gray limestone & gray sandstone in layers 1/2 to 2" thick
 60

Fauna *ptychopora*

4^b Oolitic limestone in layer 3" to 6" thick 44.

Fauna.

4^c Thin bedded bluish gray slightly arenaceous lim.
Amelia *travertina* 120

WNP 355 North

(Sec. A.)

5^a -

120

massive & thin bedded
arenaceous, steel gray -
weathering light gray
lm.

270' ✓

5^b -

thin bedded, lead gray
to bluish gray - thin
bedded, arenaceous lm.

25' ✓

10a

6c - similar to 5^a - ~~40' -~~

83' ✓

13c

5^d - Fr. " 5^b 31 - 82.

126' ✓

15b

5^e - " " 5^a

682' ✓

50a

5^f - " " 5^b

404' ✓

Total of 5 = 1595

6. Thin bedded & shaly
bluish gray lm - ~~with~~
Lana

219' ✓

Bathyporus
Lherminieria.

$$\begin{array}{r} 47 \\ \hline \end{array}$$

$$\begin{array}{r} 54 \\ 270 \\ 27 \\ \hline \end{array}$$

$$\begin{array}{r} 235 \\ 23 \\ \hline 258, \\ 22 \\ \hline 270, \end{array}$$

b

Sec. A.

7^a Siliceous & amma-
ous ^{greenish} shale with an
occasional band of
thin bedded compact
bluish gray lim 258

7^b massive bedded bluish
gray lim, breaking
down into thin layers
on cliff slopes. 22

7^c greenish siliceous
shale 23

Castle Mt. Section.

21.	Lm - (Top of section)		95+
20.	Purple & gray arg. shales		265
19	gray, buff weathering lm		63
18	Ar & cal., sh		158
17	Unab - lm		60
16	Sil - lm -		265
15	Ar - lm - thin bedded + bluish - black lm		315
14	massive ar lm + 95		1065
13	Ar. lm	Castle	260
12	Cal & ar sh - + arg. sh -		228
11	Thin bedded lm	stet	138
10	massive ar - lm		455
9	Ar - lm (thin bedded)		272
8	Ar - lm -		260
7	Bluish - black lm		40
6	Thin bedded lm		96
5	Sd - (Cacanthoides)		22
4	Shaly + argillitic lm		6
3	Thin bedded sd.		27
2	Sdy sh -		57
1.	Qtz. sd. (Obolus)		55+
	<u>St. Pierre</u>		<u>4132+</u>

Boswell

Cathedral

267

246

Aug. 1907

F. 3

Box 30

RU 7004

4

Castle Mountain Section

August 1907
COW & LWB

Castle Mountain is situated in western Alberta on the line of the Canadian Pacific Railway and faces Bow River Valley. It presents a massive front to the southwest, the higher points appearing like the ruins of a great castle, the highest part of which has an elevation of 9000 feet.

The measured section began at the Southwest base and was carried around the point of the mountain into the large amphitheater on the northeast side, and thence northwest to the point at the head of the am-

(Stewart Knob)

shutheater (9300). The ridge northeast of the amphitheater rises at its highest point to 9380

The strata of Castle Mountain proper dip slightly to the N NW and those of the ridge opposite to the W NW forming a shallow syncline at the head of the amphitheater. This structure gives very fine exposures of the strata from the quartzitic sandstones of the Bow River Group to the summit of the series.

Middle Cambrian
Bosworth formation.

~~Section~~

- 1a (21b) Gray and bluish
black limestone with
interbedded siliceous
layers and numerous
small concretions

50'

Fauna:

Solenopleura?

Ptychoparia?

annelid trails.

- 1b (21a) Compact gray to
drab siliceous lime-
stone in layers $\frac{1}{4}$ "
to 6" in thickness with
interbedded bands of
dark arenaceous shale

45'

- 2 (20) arenaceous purple
colored shale with
interbedded gray shaly
limestone in thin layers

265'

The highest of the

purple layers occur
near the summit.

- 3 (19) siliceous fine grained
thin bedded buff wea-
thering limestone 63
- 4 (18) arenaceous and calca-
reous shale, purple and
gray colored with thin
intercalated buff weather-
ing calcareous layers 158
- 5 (17) Thin bedded compact
drab colored limestone 60
- 6 (16) Castle formation.
Thin bedded (2-6") gray
siliceous limestone 265

Fauna:

Numerous large and
small ammonite trails
and borings.

- 7a (15b) Bluish black and
gray fossiliferous
limestone becoming
more or less arena-
ceous toward the top

260

Fauna:

Ptychoparia 2-3 sp
Annelid trails
annelid

- 7b (15a) Still gray weather-
ing light gray arena-
ceous limestone in
thin layers

55

- 8 (14) massive bedded light
gray finely granular
arenaceous limestone
which weathers more
like a compact gran-
ular sandstone than
a limestone. This
limestone is usually

6
very massive, but
between 540 and 575
feet above the base
it is thin bedded

1065

This is the great
cliff forming lime-
stone of the mountains
and ranges in this re-
gion, it forms the upper
cliff of Castle Mountain.

Fauna:

Numerous anelid trails
and borings occur at
various horizons.

- 9 (13) massive bedded cliff
forming dark and light
gray arenaceous lime-
stone, the massive layers
breaking up into thin
layers on broken cliffs



and talus slopes. The dark colored band forms the lower 200-250 feet, the line of demarcation between the dark band and the lighter gray being irregular

260

Stephan formation.

10a (12c) Gray buff weathering compact limestone

1

10b (12b) Drab and greenish argillaceous shale

57

Fauna:

10c (12a)



Ptychoparia
Lingulella
Hyolithes

Calcareous and arenaceous gray weathering buff and yellow shale

170

Fauna:

Ptychoparia
Lingulella.

- 11 (11) Thin bedded bluish
black and bluish gray
fossiliferous limestone
with a few interbedded
oolitic layers 6-12"
thick

138

Fauna:

Dorypyge

Olenoides

Phycoparia

Bathyuriscus

Hyalithes

Cathedral formation.

- 12 (10) Massive bedded gray
arenaceous limestone
with dark irregular
anclis borings in
many of the layers.

At 165 feet from the
base a band of bluish
gray limestone occurs
in thin layers for a
thickness of 10-12 feet.

455

- 13 (9) Thin bedded bluish gray limestone most of which is similar to the limestone of 12. Near the base bluish black fossiliferous layers occur

272

Fauna:

Zacanthoides
Ptychoparia
minute heads

- 14 (8) Gray arenaceous limestone that in nearly every bed is marked by large irregular dark anellid borings. About 75' from the base the limestone becomes a gray quartzitic sandstone

760

White formation.

- 15 (7) Bluish black thin bedded limestone 40

Fauna:

Zacanthoides

Ptychoparia 2 sp

- 16 (6) Bluish gray thin bedded limestone with oolitic layers 1-8" Thick 96

Fauna:

many indeterminate fragments of trilobites

- 17 (5) Gray and dirty brown thin bedded sandstone 22

Fauna:

Agraulos

Ptychoparia

Zacanthoides.

This fauna appears to be similar to that of the



11

same horizon on Mount
Bosworth and Mt Stephen.

- 18 (4) Shaly limestone with
thicker oolitic limestone
layers interbedded. The
limestones become more
arenaceous in the
lower part. 6

- 19 (3) Gray and dirty brown
thin bedded sandstones
with coarse anelis
trails and mud cracks
on the surface of
many of the layers.

Eight feet from the
top two calcareous
layers occur and are
other 9 feet from
the base. 27

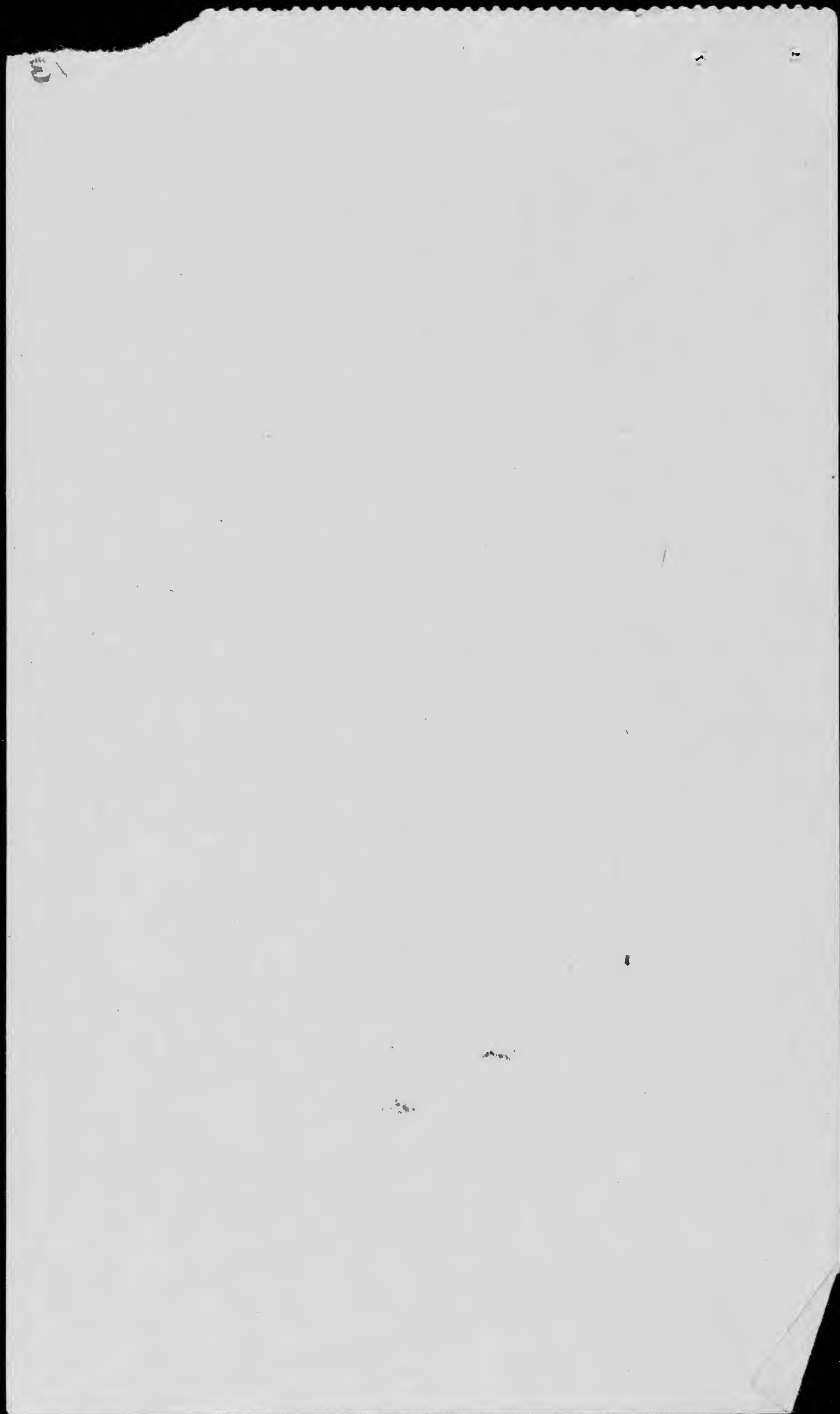
5/

20 (2) Shaly gray and brownish sandstones passing down into drab colored argillaceous and arenaceous shales with thin layers of hard sandstone.

11 feet from the top there is a thin band of purple shale 57

Fauna:

Many fragments of a large species of *Olivellus* occur in the interbedded sandstones in the lower 20 feet.



5th - Prian formation,
 21 (1) Gray quartzitic
 sandstones in
 layers 1-3 feet thick
 weathering rough on
 the surface

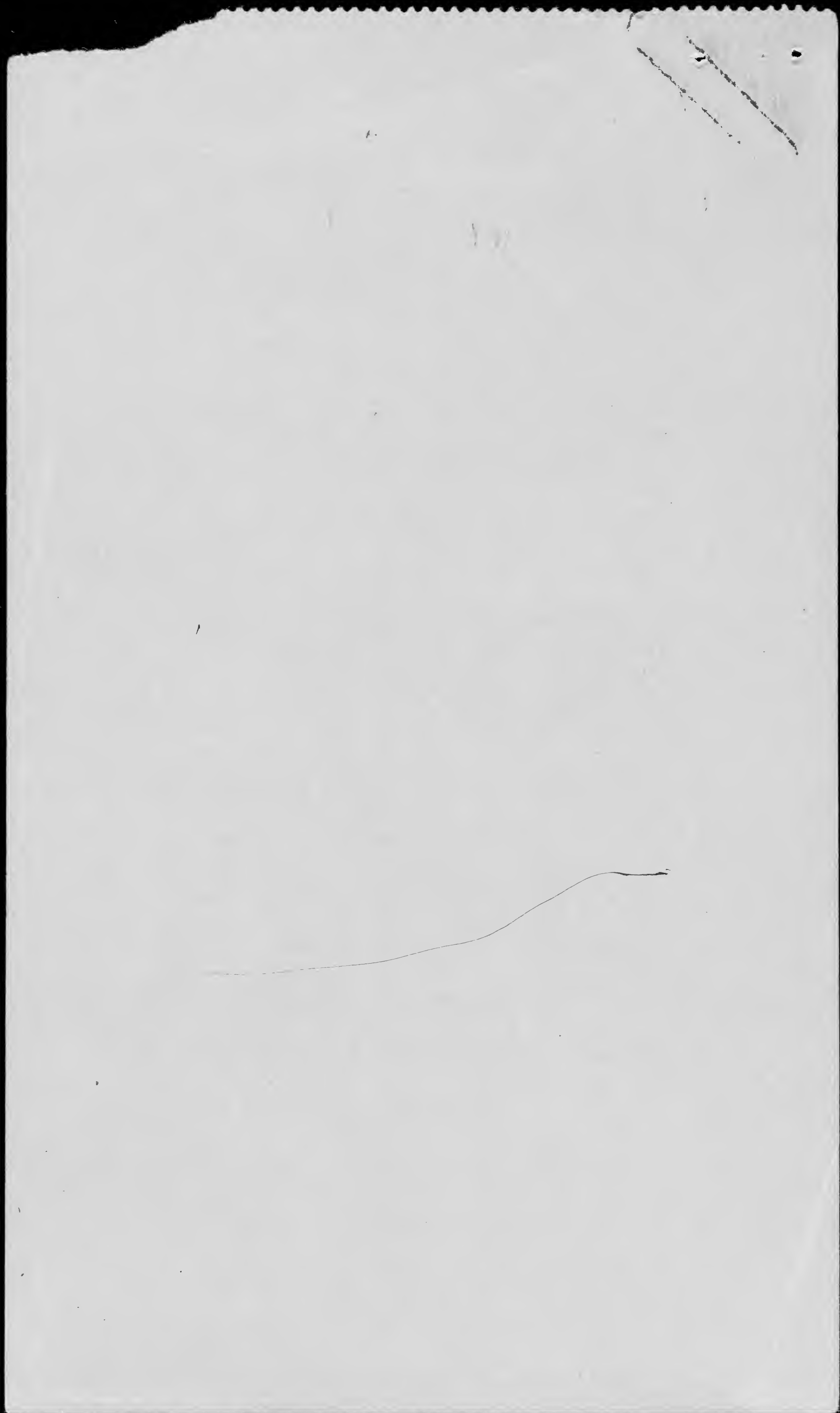
55

Fossils:

Fragments of *Olenellus*

In the cliff at the
 southwest end of the
 mountain there
 is about 200 feet of
 the quartzitic sand-
 stones exposed

~~7~~



July 4, 1910

F3

Box 30

R67004

W. H. July 4/10.
Upper Cambrian.

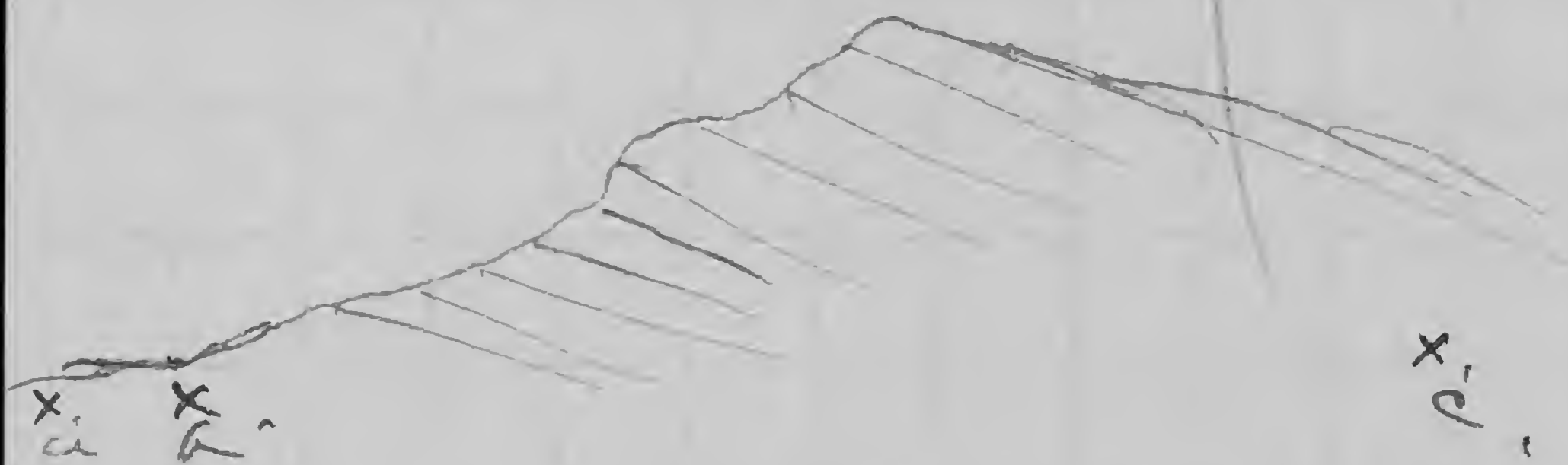
Kicking Horse valley.

The ridge of Mt Hunter on the north side of the C. P. Ry between Altentail & Palliser, is capped by the limestones ^{+ shales} of the Paget & Sherbrook formations. In the same manner as the ridge of Mt. Vaux - The valley of the Kicking Horse river cuts ~~through~~ the spales (Palliser) ~~between~~ beneath the limestones between Altentail and west of Palliser for two or three miles. The ridge of Mt Hunter is dropped by a fault N. S. - along the line of the Kicking Horse so that the limestones are

along the track ^{July 4/10}
of the C.P.R. on the
north side of the
river and 2000 feet
or more above the river
on Mt Vaux

The limestone with
some interbedded shales
& siliceous beds for the
upper 4000 feet of Mt Vaux.

Mt. Turner,



Fossils at ^{a. b. c.}
x. x. x.

Van Horn Range

July 1910

From Mr Vaux the
synclinal nature
of the Van Horn Range
is very clear.

The occurrence of
Cambrian fossils
at Leanchoil
station - also at
Upton Falls indicates
that the mountains
on the south, Vaux,
Chancellor - etc. - may
also be in a syn-
clinal zone of

The ^{limestones of} west ridge of
Mr. Hunter strike S.W.
& are above the
fossil bearing rock
of Leanchoil

Mc Connell interpreted
the structure of the
Van Horn range

Composite Kicking Horse Section.

Brisco. Silurian 1200±' thick-bedded gray
rough weathering sil. mg. ls.
Halysites, Strophodonts, etc.
Graptolites - Monograptus, Retiolites
etc

Beaurefoot Silurian - 400±'. Gray, compact, cliff-forming
ls. chert nodules.
Richmond fauna. Receptaculites
Columnaria. Heterodella etc

Blenogle. Ord - 1700±'. Black sh. some places with thin
ls. Graptolites in upper part.
Didymograptus, Diplograptus.
Chamaegraptus etc.

Mons 3800' - in Beaurefoot-Brisco.

Goodsir 6040' - (shales. hard & soft.) Cherty ls.
& siliceous shales in Mt. Goodsir.
Housia fauna in lower 300'.

Ottertail 1825±'. ls. & sh.
Prokainella near base.

Chancellor 4500' - gray, yellow, etc. sh.
Trace of agnostus.

Shebrook 1375' - on Mt Bosworth.

175' - massive gray blue ls. some chert
trails only.

190' - Gray oolitic ls.
Crepicephalus

335' - greenish and gray sh. with oolite
beds.

65' - gray oolitic ls. shaly.
Krugtonia etc.

610' - Aren. dol. ls.
(See next page)

Kicking Horse (2)

Paget 360'±. 60'- massive bluish.

300'± oolitic ls.

Cupicephalus etc.

Bosworth-1587'- 600'± massive dol.

422'- Shaly & thin-bedded ls.

48'- green, sil. sh. with layers

517'- of ls.

Victory 268'- green, deep-red, buff, yellow, gray.

Edon 2728'- ^{410'} gray sil. aren. ls.

"Ptychoparia"

110'- light & dark gray.

197'- massive sil. ls.

Bellingsella? neoleum.

71'- massive ls.

95'- thin-bedded gray ls.

~~190~~ Isoxys, Obolus, Euthia etc

190'- massive ls.

1655'- " " cliff-forming

Stephen 640'- 315'- Dark ls.

Nisusia, Micromitra, Dorypyge etc

23'- green sil. sh.

Obolus

22'- thick ls.

Nisusia, Micromitra.

70'- green sh (sil).

210'- bluish ls. shale below

Glossopleura, Obolus etc

Cathedral 1212'- thin an massive mostly gray ls. Trails

Ptarmigan 664'- (see Ross Lake sec)

Mt Whyte 390' on Mt Bosworth.

120'- thin-aren. ls. (trails)

44'- oolitic ls.

Jamesella, Alenopsis etc.

Agg. shale
first in base

Kicking Horse 3.

60' - massive layers blue ls. &
ss 1-2".

Cephalopodus
31' - gray and brown ss.
"Ptychoparia"

115' - Sil. sh. with some ss.

20' - gray ls & greenish sh.

ls. *visusia*, *mesonocis* etc

St Piran 503 - on mt Rosworth.

ss & shales. *Olenellus*.

Lake Louise 105 (Lake Louise)

77 Mountain 600' + gty. ss.

Mt. Temple.

seen and at Sentinel Pass.

Mt. White 171' -

mostly shale.

St Piran. + 71 Mt.

In the Giant Stairs on ^{W. side} Paradise Valley.

Short River. #

On Rocky Mt front north of Short
River. Devonian rests directly
on Ptarmigan.

#

Ross Lake section. (in amphitheatre)

Cathedral 1086'

Pteromigan 664'

(Ross Lake shale upper 165')
albertella

Mt Whyte 248'

Kochiella fuma above. ← some white
Borrad + Olenellus below. (sandy)

St Piran

Purplish quartzites.

#

Mt Schaeffer

Mt Whyte

1604

Borrad, Nisus, etc.

Mt Odaray.

Stephen 200'

Cathedral 1200'

(P. armigatus?)

Mt Wye 250'

St Pisau 1500'

#

Ranger Canyon Section.

Camp just above Ranger station.

Carboniferous - nearest valley. Dip S.W. at high angle.

Permian Dark ls with shale at base.
Messines ls. corals, etc.

~~Carboniferous~~
Sarbach 124'. Compact & dolomitic ls. chert.
(no fossils reported) (Saw *Lecanospira*)

Mons 986'

236' Thin layers of gray ls. with small concretions
72' below top. *Oriskania* etc.
95' - small ceph.
750' - Thick bedded gray ls. with shale
layers.
476' down *Symphysaria* frag.

Sabine 400'

190' - massive gray ls.
near has *Cryptozoon*
120' - Thin layers hard ls with shaly
partings.
Sankia, *Hardyia*, etc
Eoorthis
90' - Thick, gray, oolitic ls. weather
reddish brown.
some lotryoidal layers.
Fauna in lower 30'.
Eoorthis, *Syntrophis*, *Ptychospira*
Platycolpa, *Briscoia*, *Sankia*
etc

Lyell 1470'

1325' - Aren. and mag. ls. mostly heavy.
145' - gray oolitic ls. with cal. shale.
Irvingella, *Lingulepis* - etc.
Idahoia.

(over)

Bosumth. 165'

bluish gray compact ls.

(no fossils reported)

Arctomys - 95' - shales and ss. (green, red etc)

Eldon - 300' - no fossils, mg. ls.

Vermilion Pass

Going up L. Vermilion creek for Boon
over drift for over 2 mi. Then over
Belt series.

Contact of C cong. with shales of Belt
in Canyon n.e. Boon Mt. $\frac{1}{4}$ mi
above large lake on creek. (Boon lake).
7 ft. Mountain form.
#

At lower end of upper pond on the north
side of the Pass a fine outcrop of Lake
Louise shale occurs and above that the
sandstones of the St Piran formation.

At the upper (south) end of the upper
pond numerous L. C. fossils occur in
a light gray, thin-bedded ss. of the
St Piran. (6013) (Trammeria, Obolus etc)

The St Piran sandstones form cliffs back
from the pass on the west side in
Boon Mt. and the high ridges north of
Storm Mt. on the southeast side. There
is a fine section up to the base
of the limestones of the Mt Whyte and
on up thru to the massive limestones
of the Cathedral formation which form
the summits of Storm Mt on the
east and Mt Whympere and Boon
Mt on the west & n.w.

The Mt Whyte on Mt Whympere has
a few layers of oolitic limestone
interbedded in bluish black, thin-
bedded limestone with white fragments.

At no point within 5 mi. s.w. of
the pass do the limestones reach
the canyon bottom and the Olenellus
gilberti zone is 1000' or more up the
mountain sides.

Mt. Stephen.

Eldon. 2700+ - massive, gray, dolomitic ls.

Stephen 902'.

190' - poor fossils.
150' - Fossil bed.
325' - Dorypyge, Gyrogopsis etc
84' - no fossils oolitic
4' - Eodiscus etc
148' - oolites & dolomites.

Cathedral 1680'.

60' - massive ls.
1560' - arenaceous, dolomitic massive
60' - " " "

Ptermigan

Ptermigan must be subtracted from
Cathedral or Mt Whyte or both.

Mt Whyte 215'.

3' - dark ls.

Muscia, Scenella, etc.

108' - gray

Olenellus, Scenella, etc.

52' - hard ls.

same fauna with Polidella.

32' - Brownish qtz layers.

Bornia, etc. Olenellus

102' - shale siliceous

Kochiella, Scenella

18' - ls.

Kutorgina, Muscia, Olenellus etc

St Piran 300' - massive qtz.

Ptarmigan Peak. (n.e. face).

Cathedral 2100' estimate. worm trails

Ptarmigan 426' top Zacanthoides & Neobryozoa constans.

Mt Whyte 342'

top, 28'. thin bedded dark ls.
crepicephalus

62'

135' oolite. niscus, etc.

57'

43'

17' hard ss. Bornia & Mes. etc.

St. Pierre 785' ss. + ~~qtz~~
Alveolus etc.

Lake Louise 28' cruziana

Ht. Martin 452' - massive gtzs.

Hector. greenish shale & coarse congl.

Lake Louise & Lake Agnes.

Mt St Piran, Mt Whyte in vicinity of L. Agnes are on the Beehive down to L. Louise and on n.e. face Fairview Mt.

Cathedral 1500' (est)

Ptarmigan (not det in field)

Mt Whyte 458'

103' oolite etc.

66' ss. & ls.

38' greenish sh.

64' " "

Kochiella. Pachiella

115' - aren. ls. & greenish sh.

arenellus frag.

72' - Brownish & gray ss. with gr. sh.

Bornia. Scenella. Ol. etc.

St Piran 2632'.

arenellus 2000' down.

Lake Louise 105'. creyianica & micromitra sil. sh.

F. Mt. 940'

Castle Mountain.

S.W. front. around n.e. into amphitheatre

Bosworth ^{423'} gray to black ls with sil. layers. 50'
"Pty" etc

45' - *Krugtonia* ls. sil.

265' - aren. ls.

63' sil "

Anctomys 218' (calcareous)

Eldon 1905' massive to thin bedded ls.

fossils few. Trails abundant.

Stephen 366'.

ls. + shales. lower oolitic layers
138'. *Dorypyge*.
Bathyuriscus.

Cathedral 705' -

Ptarmigan 2 ~~70~~' -

12' - black ls.

albertella

260' - aren. ls. *ameliids*.

Mt Whyte 248'

40' - black ls *Paliella*

96' - oolitic - *frag.*

22' - ss. *Paliella*

6' - oolitic

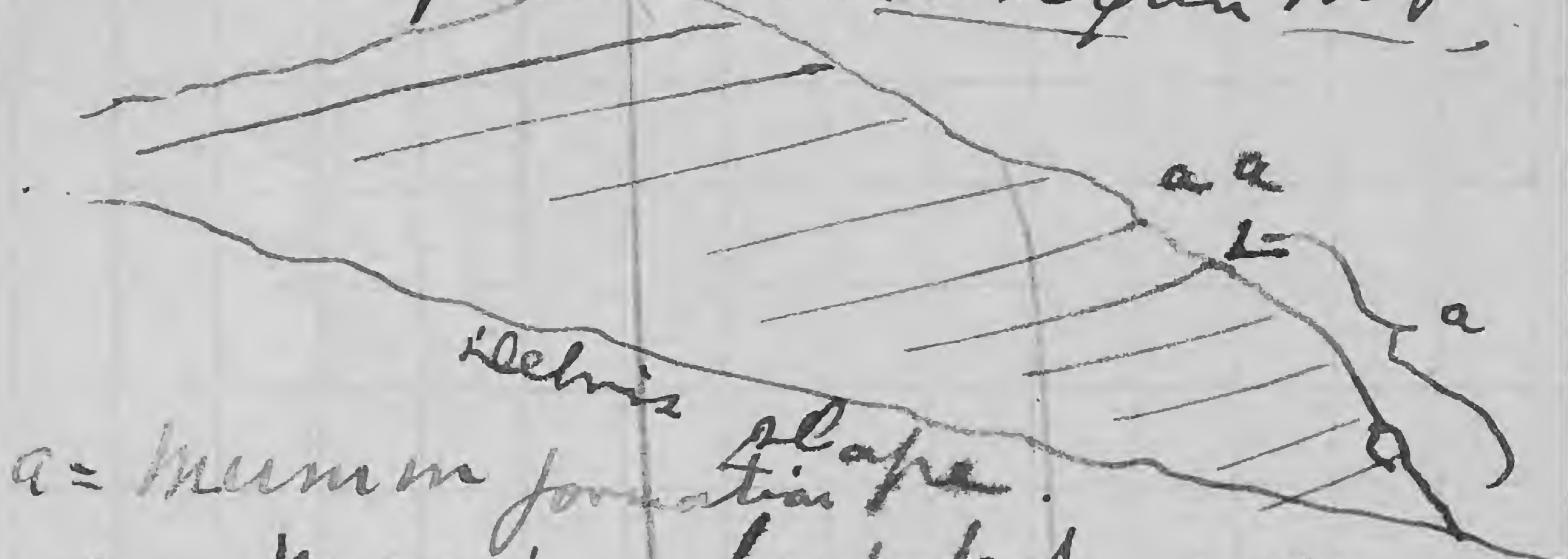
27' - ss - horn.

57' - shaly ss.

olenellus in purple band.

St Piran 55' - gtz. *olenellus*.

M - C. Aug. 8/12
N. face Ptarmigan Mt.



a = Mumm formation

a = massive bedded grey arenaceous, buff weathering limestone 600 feet.

ag. Bluish black lm with fossils. Dip 30° S. E. W.
St. N. 30. E. W.

(67^h) for list



6/K

Aug 6/12

Blue-gray lm. at S.W. end
monadnock at end of glacier.
St. N. 30, West with 30 SW

medial membrane, from
+ light gray Robson
Dare, colored, massive
bedded lm:
Gray, conchoidal, magnesian
lm, weathering buff.

Subsidiary & calcareous
gray shale with mag.
layers - weathering buff.
Cleaved.
No traces of fossils.

Handwritten text at the top of the page, possibly a title or date, appearing to read "(X13) 21. 11. 21".



July 13, 1913

F2

Box 30

R67004

July 13 / 13.

Rabson

section



On the south west side of Lake Kinney the Lower Cambrian sandstones rise at a high angle (60°) to the S.W. On the N.E. side of the lake the gray thin bedded middle Cambrian limestones ~~form~~ ~~form~~ cliffs beside the trail ~~at~~ above the head of the lake. Below the fork of the lake ~~north of~~ ~~head~~ Rainbow

Canyon the ²m - C - limestones
have an increased dip &
the Lower Cambrian
sandstones appear beneath
them -

From the data now at hand
it appears that to the south
the hill (Lake Kinney Station)
is formed of 4, C. sandstones
that rise at a high
angle from beneath the
limestones.

At the N.W. end of
the Lake Kinney ^{grange} plat
a spur of Whitehorn Peak
rises abruptly. It is formed
of massive bedded m - C -
limestones dipping 30° N

L. Cambrian
Sd

L. m. C.

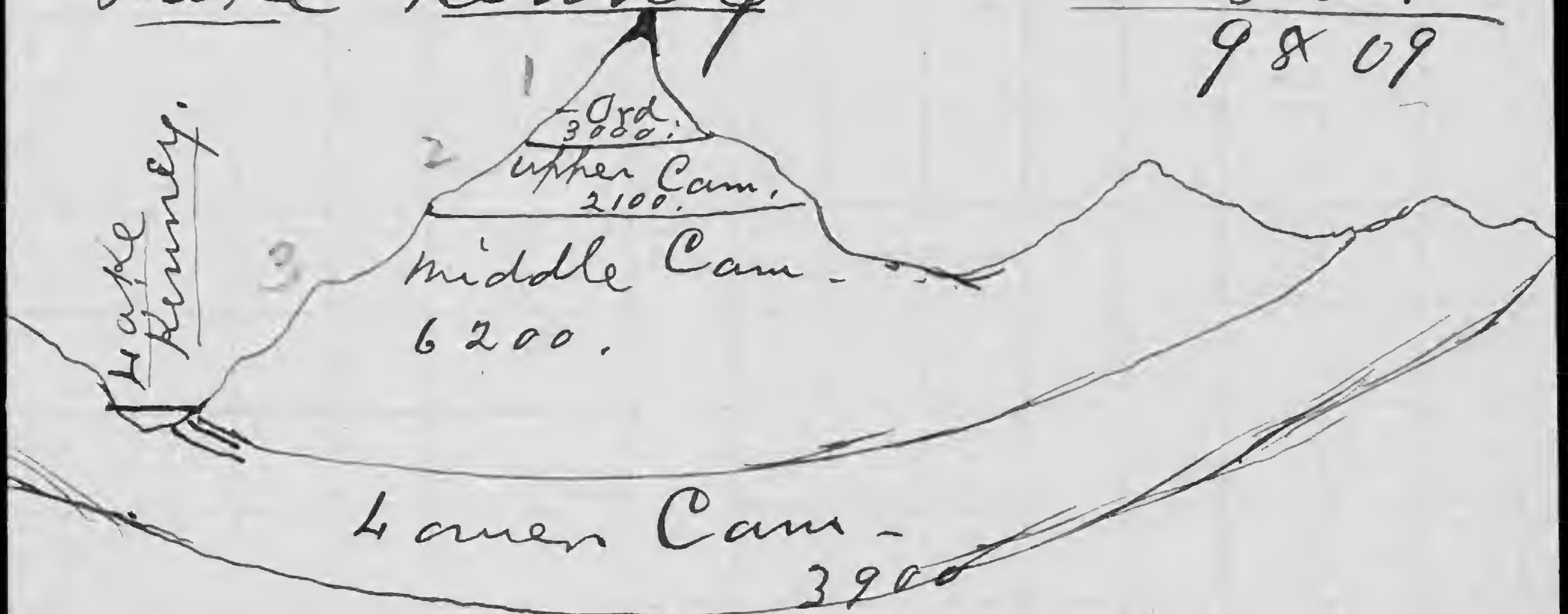
(On back)

(2^a)

The limestones of the spur
extend across to the Little
Grizzly Peak side but
they are quickly cut out
to the S.W. by the abrupt
rising dip. N. of Little
Grizzly Peak the L. - Cam.
sandstones ~~11300~~ are vertical.
~~9800~~
1500

2450.

The Wheeler map gives
 Rabson Peak a height
 of Lake Kenney $13068''$
 $\frac{3259}{9809}$



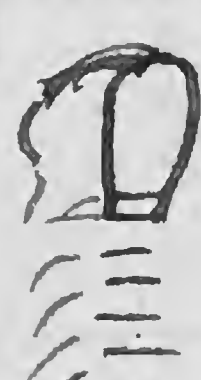
My section of 1912, gave		
1 Ord -	3000.	Estimated
2 Upper Cam	2100.	"
3 Middle "	6200.	"
Lower "	3900.	

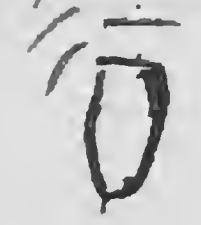
of the above 1, 2 & 3, are
 exposed on the S.W. slope
 of the mountain - except
 about ~~3~~ 1000 feet of the
 base of 3. This indicates
 that my estimates for the
 thickness of the 1, 2 & 3

are 500 feet too great.
 or that the thickness
 of the formations is
 greater to on the N. E.
 side of the mountain.
 (The work of 1913. should
 check this).

Fossils. Found typical
 fragments of Alveolus
 in the sandstone two
 or three hundred feet
 below the limestone.

At about 600 feet
 up in the limestone Sidney
 found a small trilobite.

 that suggests Protypus
 by its cephalon. It

 appears to have had
 5 thoracic segments.

(East side lake.)

(Work on the mountain -
 Rain squalls at intervals)

400

5 July 1913

Rabson section.

Where trail goes up cliff at lower end of Lake Kinney - (East side) it passes over sandstones dipping 40° N. under Rabson Peak. (Fragments of Alenellus occur in sandstone) about 100 feet above the lake.

On the opposite side of the lake (S.W. side) the dip of these sandstones (Mahto formation) is 60° to 63° N.

(61X) With Stuart found a number of fossils (61X) in the thin bedded limestone 500-600 feet above the sandstones. M - C - Ptychoparia, Cystid - (Rain squalls a.m.)

1,050,000

6

July 16/13,

Base of Cambrian

Robson W. station - of Wheeler

D 7290

Belt series.

Miette.

Sandstones
Lower Cambrian

Grand Fork

To the south & west
of Robson Peak the
Lower Cambrian sandstones
rise with a dip of 30°
 45° to 60° and on
the high ridges are
nearly vertical where
they come in contact
with dark weathering
purple thin bedded
hard sandstones that
have a vertical dip
on both sides of the
Grand Fork river.



7.

Rabson W. Station (7290') and
Lake Kinney Station (6842')
of Wheeler map.

The approximate line
between the Cambrian
+ pre-Cambrian is
a little north of the
summit of Lake Kinney
station on the ridge
above Rainbow Brook.

17

The south ~~west~~ ^{east} slope of
Rabson Peak presents
one of the great unbroken
& stratigraphic sections
of the world. From
base to summit, there
are 9800 ft of limestone
& with the upturned
strata to the S. S. E.
that come from beneath
the cliff on the ~~W. E.~~ ^{S. E.} shore of
Helena (Kinney) at least
10500 feet of limestone
& 3000 feet of the
underlying sandstones
are ^{clearly} exposed to view.

RU 7004 Box 30 F2

July 22, 1913

July 22^d
13



Looked for fossils on E-
side Iyatunga Mt. was
to correlate with strata
of Titikana Mt. on opposite
side of Hunga Glacier.
Above the lower
band of dolomitic
limestone found in
thin bedded bluish
gray limestone. The
same fossils as on
Titikana Mt. The
strike of the strata
also indicates that

2

the broad canyon
valley in which Hunga
glacier flows has
been eroded from
what was a practically
continuing series of
strata between Tithana
& Gyatunga.
Fossils.

62b)

Micrometra 2 sp.
Lingulella maccannelli -
Hyalithea -
Ptychoparia 2 sp.
etc -

On the west side of
Hunga glacier found
the fauna of 614 -
or the Billings but the
fauna - in the
lateral moraines -
This shows that

the strata of Billings
Butte occur some-
where on the N. W.
side of Hunga
Glacier well up
Teton and the Helmet
between Iyatunga Mt
& Rohrer Peak.

Helen climbed Iyatun-
ga & got down
a piece of limestone
with Hulgaia fauna
of Billings Butte.

Lynx limestone. July - 21 / 13.
Taking photos from S.W. slope of Tittkana Peak - with Robson Peak as the central & impressive feature.

Robson section.
Collected a few fossils from west base of Phillips Mt.

At about 300 feet below the fauna of Billings Butte. I found a few specimens in gray limestone (Loc. (614)) in the Lynx formation. (S. M. Coll. 5). Pl. 337.)

Lingulella cf. manticula O.O.
Ptychoparia (?) sp.
" " (?) tuberculated or granular surface.

613- About 400 feet below 614.
Ptychoparia ?



Rc 2004

Box 30

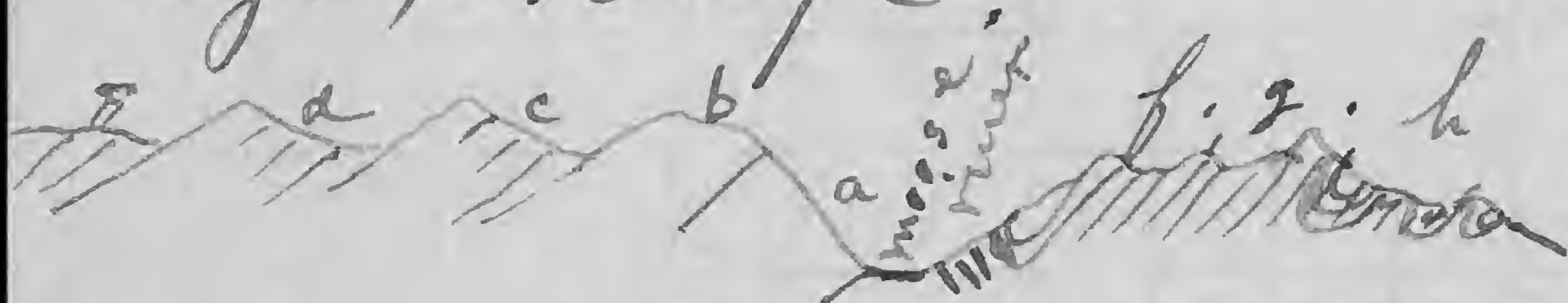
F3

July 26, 1912
" 27,
" 30

July 26/12

Canadian Rockies,

4 mi South Moose River
Pass over to Smoky river
8 mi N. E. E. of Mt. Robson
B.C. On east slope
Lynx range



{ h. Thin bedded limestone.
g. Reddish thin bedded limestone & sandstone
f. Grayish blue thin bedded limestone
f. g. h. = Upper Cambrian

Fossils from f-g-h -
see collection made from
river drifts - July 25/12

Ptychoparia
Anomodonta
Mammus

~~all the way
also any
July 27/12~~

July 26/12

e. Gray banded lm. 1000

d. massive bedded grey. (Reddish weather) lm. 1600.

c. black ^{trans} gray beds - 500.

b. Thin bedded quartzitic sandstones 1000 +

a. massive bedded light gray & pinkish quartzitic sds. 1500 +

Interpretation

limestones on east side
f. g. h = Upper Cambrian
fault in Moose river valley

d + e to middle Cambrian

c = lower Cambrian =
Mk Whyte formation.

b = St Piran formation,

a = Fairview formation.

all thickness estimated.

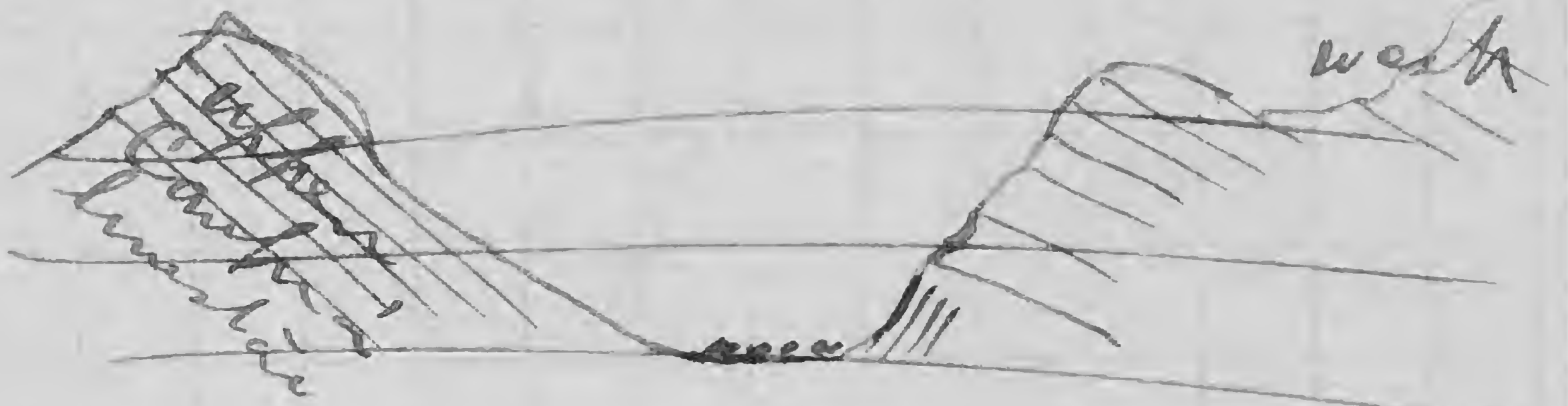
July 26/12,

In the stream
drift ~~found~~ found
Agraylar.
Ptychoporia.
Bornemannia sh.

Same fauna occurs
at summit of Mt
White formation -
L.S.M.

4

July 27/12
Cross section of Mingo
river valley about a
mile from its head &
pass.



x. shale (siliceous) with Salterella
& Hyalithellus & annelid trails.

Salterella also occurs in
shaly to gray limestone.

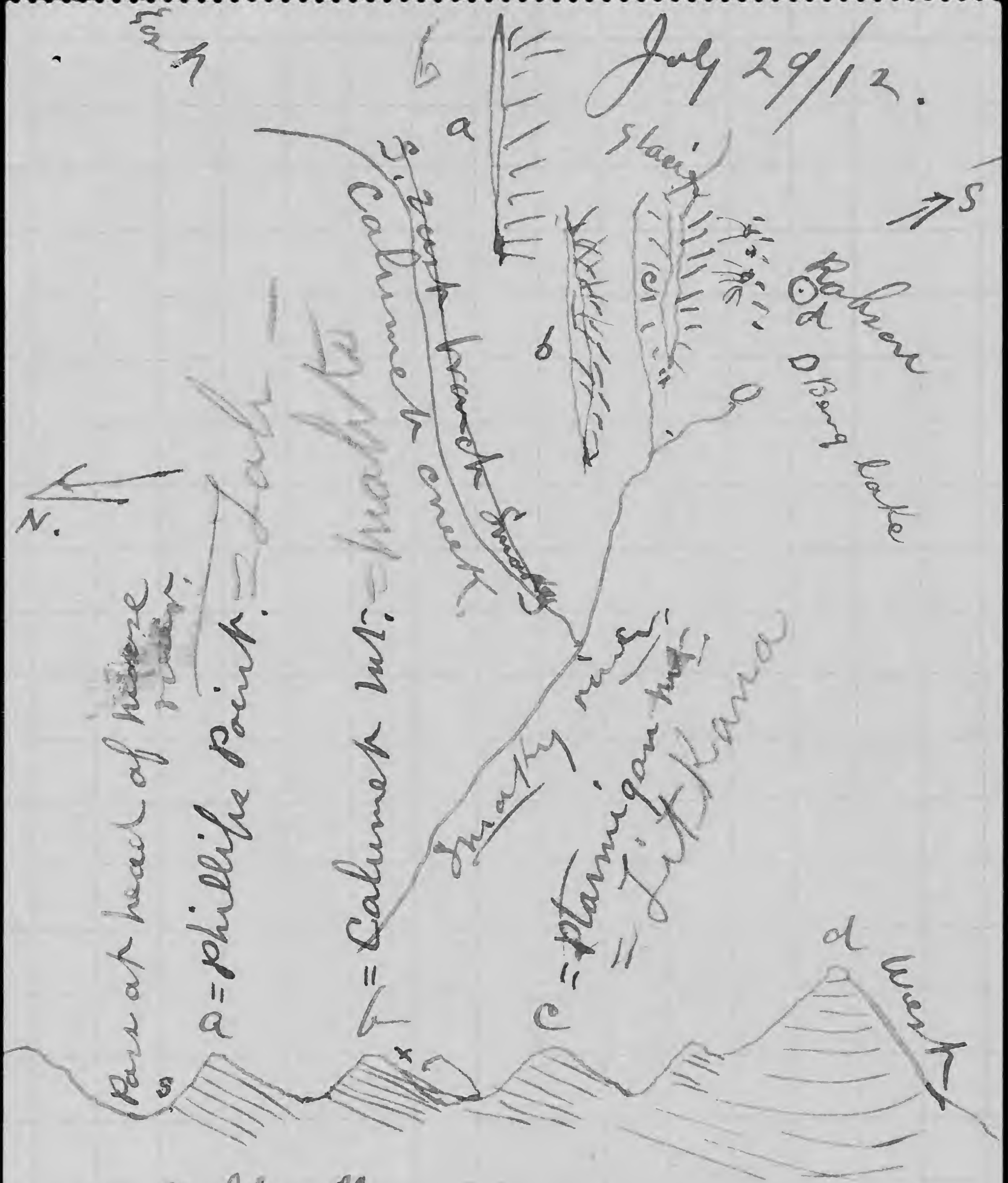
5

July 27/12

On north slope of Moose
Pass found drift block
of gray limestone containing
Bathyriscus sp. One
entire, broken specimen
can be worked out by
skillful manipulation.
Work out left half, glue
right half on & then
work that out.

This fauna is about
the same as the Idaho ^{and Utah}
M - C. containing
B. hurrelli.

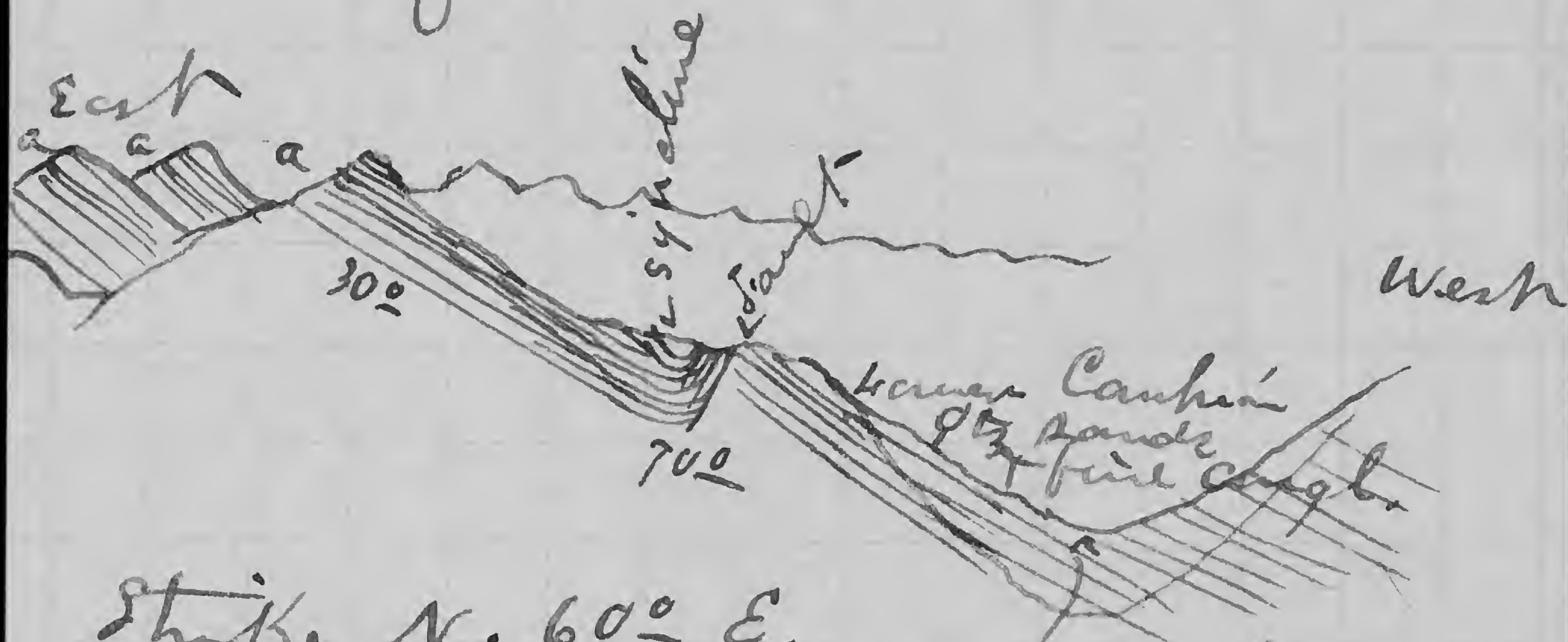
July 29/12.



s. Salterella -

* Alenebus canadensis

7. July 30th
 Fault crossing
 Moose river ~~Altitude~~ as seen
 on east side in Mt. $\frac{1}{2}$ mi
 N. E. of divide.

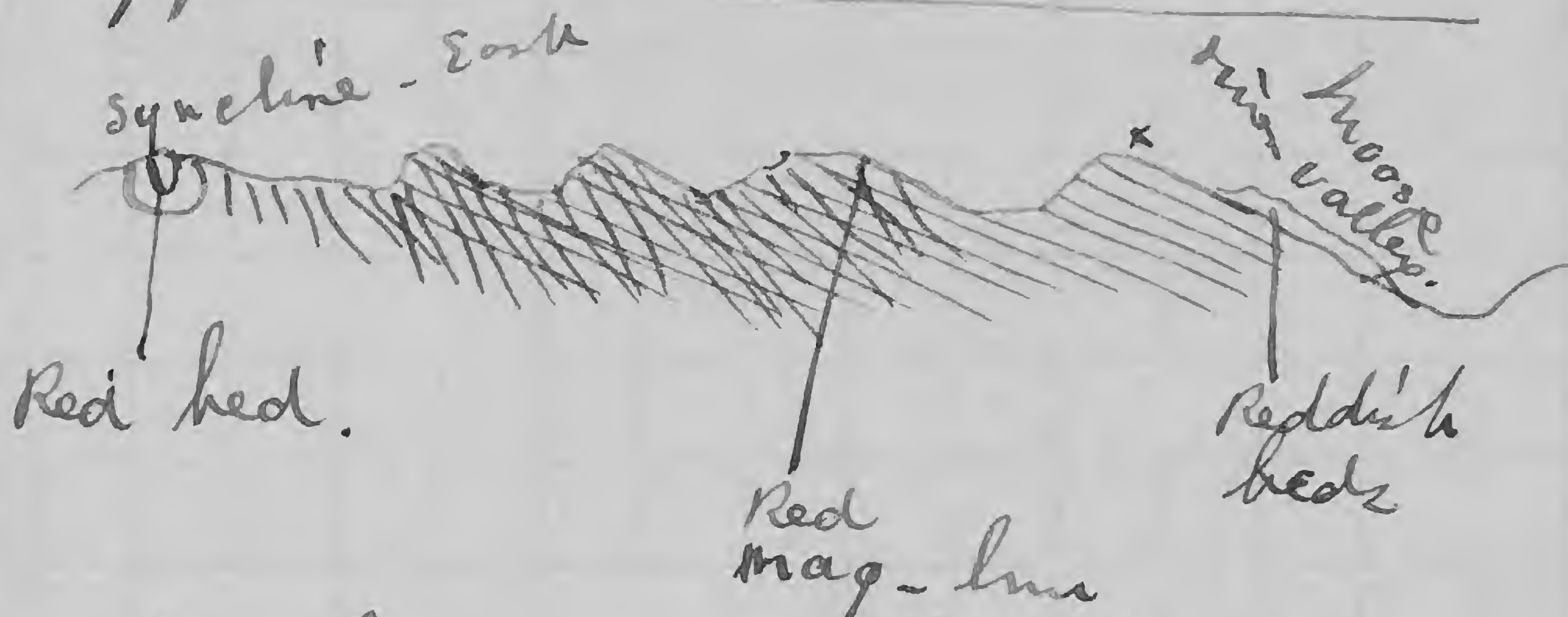


Strike N. 60° E.

N. E. branch
 Snake river

~~Upper~~

Upper Cambrian. July 30/12.



Thin bedded bluish gray
lime, with a little shale
intercalated.

Estimated thickness 3000 ft.

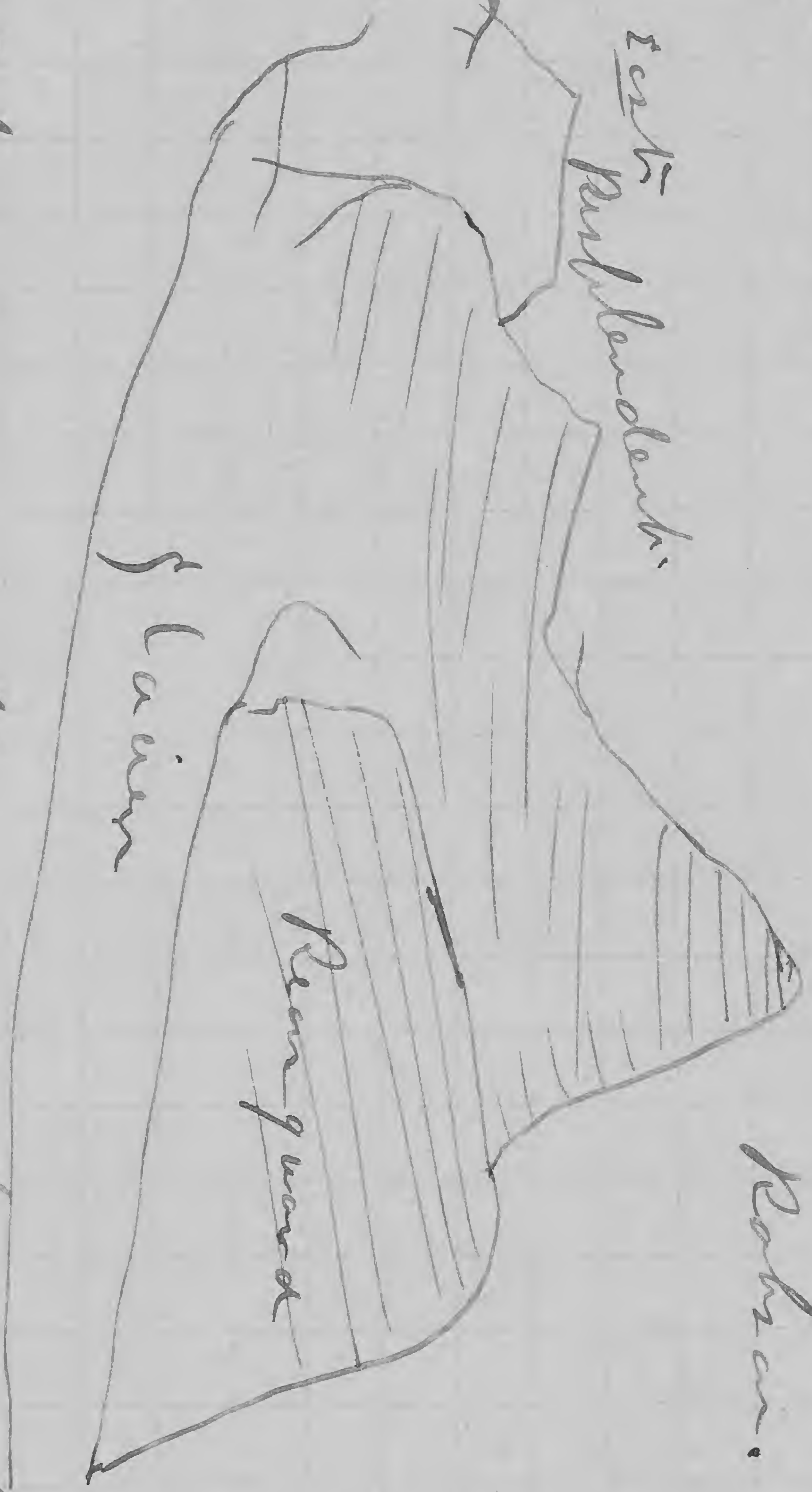
Found large Bathyurus
July 27 " + 30. derived from x

Aug 3^d

East
Pond Leveler's

Rothman.

Wash



Clair

Rothman

Rothman is a machine on seen from Wash.

Aug 8/1912

F.3.

Box 30

Ru 2004

a

aa

4000m Cambrian

4. C. + m. c. line

m-c

with 300

with 30. All. C. line

Reynolds

Ordovician

John

Cantho - Oct - June

phidolysa poir.

~~Jack Le~~ ~~Twenty~~ (Pans 1844)

Calumet Creek

(Parrish)

part

not weathering

Deutsche

3

a = Highgate
Themis! *Parnassus* Mt.
a = ...
f = ...
e = ...
d = ...

2) Mt. Robson region section
 Aug 8/12,

Ondawa 3000 Robson
 Robson
 Upper 2100. 2100. Besplenden to

Cambrian
 middle } Plamigan.
 2200
 600 Mumm.

1700
~~3400~~ Smoky
 A 7500. 7000 A 2100
 B 7600. B 2100
 1000

Lower Cambrian
 C 2800 - Calumet
 D 600. Phillips Lake
 7000. ~~Lamian~~?
 Not seen Aug. 20"

The upper 1500 of Robson
appears to be a more massive
bedded ~~siliceous~~ ^{arenaceous} limestone
than the strata below.
It weathers like the great
arenaceous limestones of
the Kicking Horse section
of C.D.M. (Eldon - Catho-
dral.) 150 miles south.

On the north of Robson the
Helmet is evidently a
mass of strata that has
settled off from Robson
& the Rear Guard Mt. is
also apparently displaced
by small faults on the
south & north.

Aug. 11/12.

3) Ord. (Robson)

Light gray (dane) colored
bluish gray - thin bedded
limestones in massive
beds on cliff exposures. 3000.
(see on back (see fossils
of 2)

Upper Cambrian

^{4400x}
~~Replenish~~ formation.

Thin bedded bluish gray
limestones with bands
of light gray siliceous
shale. Band of gray - 2700.

greenish & reddish
shales at base (fossils) 2100

Middle Cambrian.

An back

Plummergan formation

massive strata on beds
of bluish gray limestone
intercalated with
bands of gray siliceous
dolomite. magnesian limestone
weathering buff - 50 to 100
feet thick - finely shown
on north cliff of Pt. A.
un q an but + strong weather.

T. T. Hanna

Fossils are abundant
about 2000 feet from the
base both in bluish-
gray shales, weathering
light gray & in the
interbedded gray - (Rusty
weathering) and some
colored limestone. These
beds form cliffs to the
N. E. of Mt Resplendent
where the big glacier
turns from the N. N. E.
to north-west. The
fossils from the upper
(Rusty lm) are Cambro-
Ordovician as Orthoceras
occurs with them.

Aug. 11/12.

4) The Stepten formation
fama occurs in
Lower Portnoi. 2200.

Hota
~~Mumma~~ formation
Gray siliceous limestone
weathering buff & gray
on cliffs 600

Hittka
Smoky formation.
Alternating bands of
gray, thin bedded
arenaceous limestone
with argillaceous &
arenaceous & siliceous
shales that form
very striking broken, steep
cliffs & spires.

Extends along valley
of Smoky river below
Lake Adolphus east
of Mt Mumma. 1700
3400.

Monte

5) A ? ~~formation~~ On back
~~Pinkish weathering, gray~~
~~arenaceous lim.~~ 300.
~~Light gray lim.~~
~~Chetanga~~

B ? formation.

Bluish gray thin bedded
limestone forming cliff
beneath A formation
broken by a talus slope
that extends down about
100 feet to a second cliff.
A talus slope at the
foot of this extends to the
floor of the valley
down which the
main S.E. branch of the
Imakya river comes from
two glaciers

(b. of section on p. 1)

Strike of beds midway

N. 20° E. (mag). dip 25°

S. 20° W.

900
1600 feet

Fauna - about 200 forms taken

Calman ⁵
~~4444~~ mahito

~~A. formation~~

Massive bedded arena-
ceous limestones in
gaseous bands of (gray
light & dark) and
near the top a band
of gray, pinkish weathering
limestone that forms
the south slope of the
ridge in places.

Estimated thickness ⁸⁰⁰
~~1500~~

9740.

55

4200.

found Murchisonia - etc.
see (612)

at about 250 feet at
top of lower cliff
found Isacanthodes etc
612

c. (11) gray argillaceous
fm. alternating with
bands of massive
quartzitic sd. & beds
of bluish gray limestone
612 600 500 400 300 200 100

3. of whole peak - 701.

Fossils

Obolus canadensis,

Agarhos?

occ. near top & at

two horizons 5500 feet
down,

extend down in the
section for about 800
feet and carry Obolus
massive bedded quartzitic
sds with thin bedded

Bands of purple-red
sandy shale occur, ~~the~~
~~near~~ the lower portion
of these beds near the
summit of (Photographs)
Mt. ~~Marble~~

7) hard sandstones & dirty
grayish-brown shale in
thin bands. (This series from
the north face & slope
of Photograph Mt. The
southwest face slope
of Pass Mt. and down
the north east face of
Pass Mt. for about ~~600~~
800 feet. St. N. 70° W. dip 30° NW
Total of C - 2600.
1800.

D. Green & purple, hard,
silicious shales with
pinkish & greenish
silicious, irregular
massive beds of lime-
stone interbedded
in central portion. 800
600.
McMurray stone.

E. Light gray massive
bedded quartzitic
sandstone.
(Only a few feet exposed)
Aug. 19th 12

McK. Rabra Aug 3rd / 12

View of Rabra from the west



See Woodcock memo

Aug 3^d / 12

Went up N. E. glacier
of Mt. Robson -

All glaciers of this
region show retreat
in past 5 years of
from 100 to 200 feet both
from side & terminal
margins & thickness
of lower ~~fronts~~
fronts of glacier.

About same as at
Glacier, Emerald glacier
etc on C. P. Ry -

Mt Robson Aug. 9/12.

A. W. glacier of Mt Robson has brot down from high on the peak a great quantity of rock.

The gray silicious buff-weathering, massive limestone similar to that on the median moraine of Resplendent glacier is the most abundant.

Bands of bluish-gray thin bedded limestone occur between the massive silicious beds. This occurs abundantly in the moraine. Several different layers carry a small Lingula of an Oriskany type. (C12). A small Bathyrus-like trilobite.

Aug. 19th/12.

Loc. 1 mi' S. Moose Pass
blank shale from D.?
has Palterella in it
in slope rock. Verify
this further south
by rock in situ if
possible.

The Palterella is
similar apparently to
the one in the lime-
stone of the U. C.
on the east side
of the canyon.

Ronald Phillips.

Aug. 25/12

Beltran.

1 1/4 mi. west of Summit of
Yellowhead Pass - B.C.
Canada. Cuts on line
of Grand Trunk Pacific
Railroad.

1) massive bedded ^{gray, micaceous} sand-
stones with partings
of gray argillaceous ^{shale} that is cennacitic
& cleaned in most
instances. Some
of the layers of sand-
stone are ^{finer than}
others but all suggest
deposition in a muddy
water.

The strata dip ^{down}
N.W. - 60° to 70°. There
also were or less
of contorted ^{in places}

Aug. 20th/12

Resting in Camp B.

Mt. Rahzar Area.

Mt Rahzar is one of the most impressive of the high mountains of the Canadian Rockies. That is much from its being the highest peak (13000) but because it rises from Lake Helena ^{on the S.W.} 9000 feet with great cliffs & steep slopes & from Berg Lake ^{on the north} 7000 feet. To the north-east & east great buttresses of rock with huge snow fields & glaciers lead up to its acutely pyramidal summit that rises 3000 feet clear & sharp against the sky. The slopes of the upper half mile are too steep

to hold masses of snow
 altho the ~~lines~~ bedding
 of the dark limestones
 are finely outlined &
 long ribbons of ~~not~~ verti-
 cally ribbed snow
 hang in the reentrants
 angles & shallow alcoves.

It is the caplain of the
 series of peaks that
 extend (far & near) from
 its commanding presence.

~~The~~ Berg glacier hangs
 in a narrow depression
 between Robson & the dark
 mass of the Rearguard.
 Its gathering field of snow
 is high up beside the
 Helmet and the narrow
 broken, crevassed lozigue
 of ice looks as though
 at any moment it
 might be precipitated
 down the steep slope
 into Berg lake - instead

of flowing gently down
 to the lake, breaking
 off as small bergs and
 sailing quietly away
 over the placid water.
 The snow of the east
 face, drops down to the
 gathering field between
 the Helmet & the snow
 clad Mt. Resplendent,
 and contribute their
 mite to the impressive
 Resplendent ^{Rapids} glacier
 That cascades down the
 slope of the ^{canyon} valley
 between the Rearguard
 and Resplendent before
 turning north between
 Rearguard & Ptarmigan
 Mt. A long & gentle
 slope of two miles
 the most peaceful
 river of ice creeps
 down to the level

of the ^{valley} plain of Berg
lake.

A third glacier of
rather modest features
on the ~~mountain~~ north slope
of Robson & forced
a high moraine out
to bar the passage
of the waters of Berg
Lake that plain part
as the beginning
of Grand Forks river.
~~viewed~~ from the higher peaks
& ridges (8 to 11000 feet)
Robson stands out as
the commanding
figure of the landscape.
as the topography of
the region is such that
~~for~~ a clear view
is readily obtained.

The pouring of the
waters on ~~Recherché~~
glacier. ~~Recherché~~

A small stream
flowing down the
gentle slope of the
glacier nearly mid-
way of its lower
portion was robbed
of a portion of its
water by a ~~fast~~ stream
that was cutting
back on the slope
with the result that
the west branch
carried the water
to the stream that
enjoined Beng lake
& thence to the
Pacific while the
east branch
delivered its water
to the stream that
flowed towards

Lake Adolphus
+ thence to the
Smoky river and
Hudson Bay. A
^{temporary} continental divide
on the glacier.
(See Kodaks.)

Aug. 24/12

Robson appear to be
formed of ~~tridite~~ Cambrian
massive & shaly lms.
The great ~~siliceous~~, massive
bedded siliceous lms of
the C. P. Ry section and
(Eldar, Cathedral) are
not well defined if present
at all.

The cliffs of Robson are
made up of ^{more} gray lms.
with some magnesian
lms & intercalated siliceous
shales ^{layers of dolitic} &
interformational cong - l
~~layers~~ lms are frequent.

The syncline is between
Robson & the "Rearguard"
to the N. E.

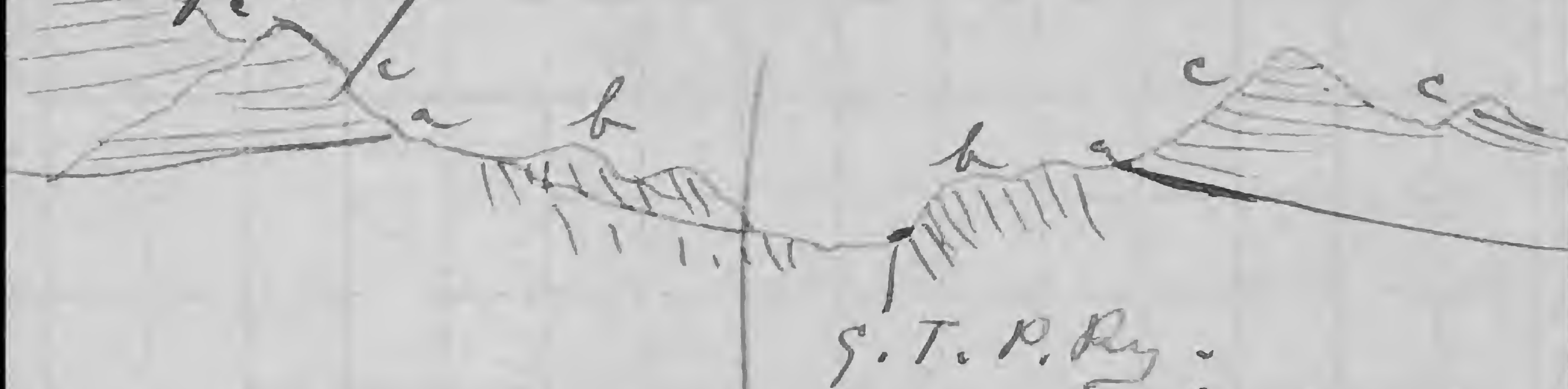


R07004 Box 30 F3

Aug. 25, 1912

Yellowhead Pass Aug. 25/12

Valley



a - a - Base of Cambrian
b. b. Algonkian (Beltian)
c. c. Cambrian sandstones.

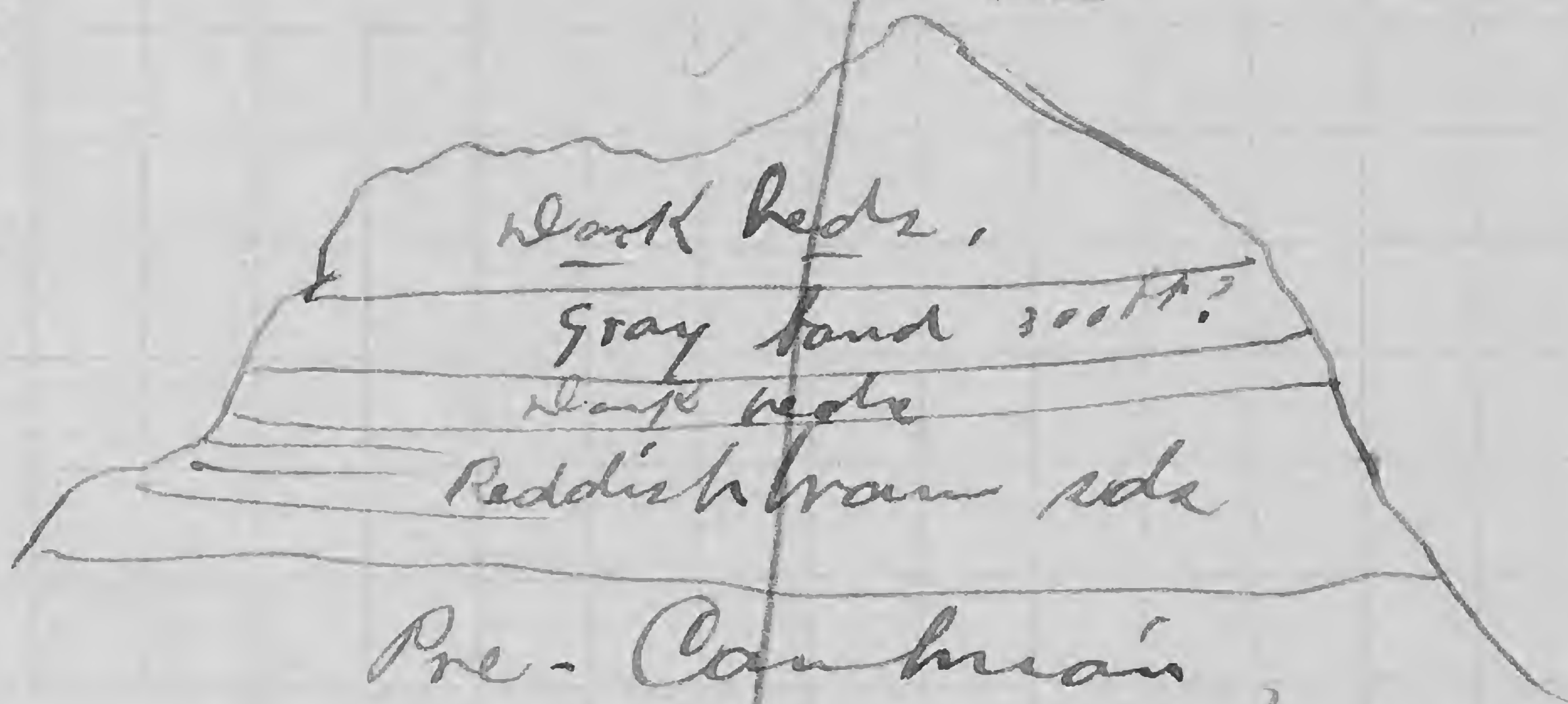
Essentially same type
of valley as the Bon
River Valley near
Laggar on the Can.
Pac. Ry.

Aug 26/12

Went on ridge west
of Pass & found
Algonkian (Beltian)
extended at about
2500 feet above Pass.
Cambrian sandstones
rest unconformably

in the Beltrami as
shown on both
sides of Pass - See
photos

mt Pelee



See photos -

highly siliceous
Limestones, hard - black.
No fossils seen in the
dark beds.

Coald. clay clay,

RU7004

Box 30

F3

July 28, 1916

July 28/16
Lecture of Cambrian up on
Bishah Mt. East of
Wander Pass. B.C.

1) Fairview Qtz.

Basal congl. in massive
layers. (8) 45.6'

b) massive bedded grey
qtz - (85) 480.

a) Strike N. 70° W. (mag)
Dip 7° to 10° S.

2) Lake Louise shale (12)

Dark siliceous
shale forming well
defined band in
cliffs. 69'

3) a) St. Piran Quartzite
Thin bedded
massive bedded light.

$$\begin{array}{r} 41 \\ \hline 205 \end{array}$$

$$\begin{array}{r} 392 \\ \hline 32 \end{array}$$

$$49$$

$$245$$

$$32$$

$$277$$

$$\begin{array}{r} 41 \\ 205 \\ \hline 30 \end{array}$$

$$34.$$

$$\begin{array}{r} 170 \\ \hline 25 \end{array}$$

$$89$$

$$34$$

$$55$$

$$\begin{array}{r} 275 \\ \hline 40 \end{array}$$

13

gray quartzite, with
a few partings of
siliceous shale (49) 280.

(b) massive bedded light
gray quartzite (41) 235.

mt. Whyte formation -
1. (a) Hard, ~~crystalline~~ siliceous shale
dark gray to black
weathering buff
included iron (34) 195

2. Hard, siliceous
greenish shaly
beds (55) 315

3. Banded green
siliceous beds in
marble layers, 235

4. Alternating beds of
shale similar to 3 and
with gray siliceous

limestone.

3

1761

5. Gray, galitic limestone
in thin beds. 2ⁱⁿ - 6ⁱⁿ
thick -

21 feet

Cathedral limestone

1. Buff weathering
arenaceous

massive beds 26

2. Bluish ^{gray} arenaceous
limestone alternating
with bands of
purer limestone
made up of thin
layers -

Not named